Listing of claims:

The following is a complete listing of all claims in the application, with an indication of the status of each:

1. (Currently Amended) A method to diagnose equipment failures using an integrated approach of case-based reasoning and reliability analysis, comprising the steps of:

collecting a statistical reliability data for each of a plurality of given equipments and for each of the hardware components of said equipment, said collecting including calculating a statistical average time between two successive failures of the equipment, calculating a statistical average time between successive two failures for each of said hardware components, calculating a statistical average time to repair failures of the equipment and calculating a statistical average time to repair failures of each of its hardware components;

constructing ~~maintaining~~ a case base database for each of the equipment, wherein each case based database record comprises at least four fields, including a failed equipment identifier field, a failed component identifier field, a failure description text field, and a solution record field;

receiving an equipment problem description from a user, said description including a problem equipment identifier and a problem description text;

generating for each of said hardware components a conditional statistical probability of said component having a failed state given that the equipment identified by the user-input problem equipment identifier has a failed state, based on said collected statistical reliability data;

~~for each component in the equipment, calculating failure probability based on at least one of historical failure data and published failure data of the components;~~

matching the problem description test input by the user to the failure description text field of the case base database records to calculate ~~for each component, calculating~~ a case-based probability ~~of~~ for each of said hardware components associated with said failed state ~~matching problem description assuming that a component fails, using case based reasoning~~;

~~for each component, combining the calculated probabilities to compute an overall failure probability given historical failure published failure data, and said problem description; and~~

generating ~~composing~~ a list of component troubleshooting recommendations based on said generated conditional statistical probabilities and said calculated case base probabilities; and ~~ranked by overall failure probabilities computed for each component and retrieving corresponding past solutions from said case base database~~

displaying said list of generated troubleshooting recommendations.

2 -5 (Canceled).

6 (Currently Amended). A decision support system to diagnose equipment failures using an integrated approach of case-based reasoning and reliability analysis, comprising:

a statistical reliability database storing a statistical reliability data representing, for each of a plurality of given equipments and for each of the hardware components of said equipment, a statistical average time between two successive failures of the equipment, the statistical average time between two successive failures for each of its hardware components, the statistical average time to repair failures of the equipment and the statistical average time to repair failures of each of its hardware components;

a case base maintenance management system database for the equipment wherein each case base database record comprises at least four

fields, including a failed equipment identifier field, a failed component identifier field, a failure description text field, and a solution record field;

a decision support system database;

a decision support system client for receiving an equipment problem description from a user, said description including a problem equipment identifier and a problem description text;

a decision support system server receiving input from the decision support system client and accessing said case base maintenance management system database and said decision support system database, said decision support system server including

a real-time decision support system engine for calculating failure probability for each hardware component in the equipment, wherein said engine is

arranged to receive an equipment problem description from a user, said description including a problem equipment identifier data and a problem description text;

arranged to generate, for each of said hardware components a conditional statistical probability of said component having a failed state given that the equipment identified by the user-input problem equipment identifier has a failed state, based on said collected statistical reliability data;

arranged to match the problem description test input by the user to the failure description text field of the case base database records to calculate a case-based probability for each of said hardware components associated with said failed state;

arranged to generate a list of component troubleshooting recommendations based on said generated conditional statistical probabilities and said calculated case base probabilities,

~~at least one of historical failure data and published failure data of each of the components, and for calculating a probability of matching said~~

~~equipment problem description for each component, assuming that a component fails, using case-based reasoning, and for each component, combining said calculated probability of matching said equipment problem description for each component to compute an overall failure probability for each component given said at least one of the historical failure data and published failure data of each of the components and said equipment problem description~~ and

arranged to display said ~~composing~~ a list of component troubleshooting recommendations ranked by ~~overall failure~~ said generated conditional statistical probabilities and said calculated case base probabilities computed for each hardware component, and to retrieve ~~retrieving~~ corresponding past solutions from the case base maintenance management system database; and

a case base update processor for copying closed failure transaction records from the case base maintenance management systems database, and extracting information from these transaction records to obtain attributes required by said real-time decision support system engine, and indexing each closed failure transaction record by a failed component identification and a number of occurrence of failure of that particular component.

7-10. (Canceled)